

CURRICULUM VITAE

Penehuro Fatu Lefale

Employment History	
Oct 2015 - Current	<p>International Climate Analyst/co-Director, LeA International, Wellington, New Zealand</p> <p>Co-developed the firm in 2015 to work on climate change, and disaster risk reduction & resilience in the Asia-Pacific region. Clients include:</p> <ul style="list-style-type: none"> • Government of Tokelau/New Zealand, MFAT, Commonwealth Secretariat, World Meteorological Organisation (WMO), Pacific NDC Hub, Harvard University, Oxford University, Victoria University, University of the South Pacific, the Breakthrough Institute, Habitat for Humanity, New Zealand, Solar Radiation Management Governance Initiative (SRMI), University of Bristol, UK, New Zealand Treasury – New Zealand <p>Research and Development:</p> <ul style="list-style-type: none"> • International climate and environmental policy making: investigate past and future effects of climate change on selected Pacific Small Island Developing States (SIDS) • Pacific indigenous pathways for managing climate risks • Climate Intervention Technologies (Negative Emissions Technologies (NETS) and Solar Geoengineering (Solar Radiation Modification (SRM))).
01 Mar 2019 - Current	<ul style="list-style-type: none"> • Research Affiliate, Harvard University, Solar Geoengineering Research Program, Cambridge, USA • Governance of Solar Geoengineering from a Pacific Islands' perspective research
01 Feb 2018 - Current	<ul style="list-style-type: none"> • Senior Fellow, The Breakthrough Institute, Oakland, California, USA <ul style="list-style-type: none"> ○ Eco-modernism Manifesto research.
01 Jul 2019 - 30 Jun 2021	<ul style="list-style-type: none"> • Adjunct Fellow, The University of the South Pacific PACE SD (USP Pacific Centre for Environment and Sustainable Development), Suva, Fiji. • Negative Emissions Technologies: Governance and Incorporation in National Economic and Environmental Development (NETGAINED) joint research with Oxford University.
Mar 2014 - Sept 2015	<p>International Climate and Policy Analyst, Bodeker Scientific, Alexandra, Otago, New Zealand</p> <p>Implemented four US-NZ Joint Commission Meeting on Science and Technology (JCM S & T) funded international projects:</p> <ul style="list-style-type: none"> • Review of the Pacific Islands Global Climate Observing System (PI GCOS) • Health and Climate Early Warning System (H-CLEWS) in Samoa • Organised and hosted the American Meteorological Society (AMS) 11th International Conference on Southern Hemisphere Meteorology and Oceanography (ICSHMO) • Explored the establishment of a Regional Training Centre Meteorology and Climatology at the University of the South Pacific (USP).

<p>Oct 2012 - Mar 2014</p>	<p>Pacific Manager, National Weather Service Division, MetService NZ, Wellington, New Zealand</p> <p>The purpose of the position is to ensure (i) effective relationships with Pacific regional stakeholders in relation to meteorological services and (ii) effective management of regional meteorological support services that meet the requirements of development partners and or other contracting agencies.</p> <p>Key accountabilities:</p> <ul style="list-style-type: none"> • managing MetService/NIWA and other collaborating partners' delivery of international meteorological and related services' support to Pacific Islands. The support is funded by New Zealand government under MetService's contract with the Ministry of Transport (MoT contract), the United States NOAA Global Climate Observing System (GCOS) Technical Support Project (TSP), the United Kingdom Met Office World Weather Watch (WWW) Pacific Fund (PF), set up under the Voluntary Cooperation Programme (VCP) of the WWMO, Australian Bureau of Meteorology (BoM)/AusAid funded meteorological programmes in Pacific Islands, and one-off commercial contracts. • leveraging business innovations and employment opportunities from international development assistance programme ('win-win-win' value for money makeover approach to delivery of development assistance to Pacific Islands). • expanding, maintaining, enhancing and sustaining international cooperation and business innovations and services.
<p>Sep 2006 - Oct 2012</p>	<p>Manager, International Affairs Office, National Weather Service Division, MetService NZ, Wellington, New Zealand</p> <p>The purpose of the position was to ensure (i) effective relationships with international partners and stakeholders in relation to meteorological services and (ii) effective management of international meteorological support services that meet the requirements of development partners, other contracting agencies and private companies.</p> <p>Key accountabilities:</p> <ul style="list-style-type: none"> • managing MetService's International Affairs Office, focusing on New Zealand's participation in international weather, climate and water operational and research programmes, in particular, those programmes supported by external donors (e.g. Australian Bureau of Meteorology (BoM)/AusAID, US NOAA, WMO, Finland, Italy, EU, Japan, etc.) for Pacific Island Countries. The support is funded by the New Zealand government under MetService's contract with the Ministry of Transport (MoT contract), the United States NOAA Global Climate Observing System (GCOS) Technical Support Project (TSP), the United Kingdom Met Office World Weather Watch (WWW) Pacific Trust Fund (PF), set up under Voluntary Cooperation Programme (VCP) of the World Meteorological Organization (WMO), Australian Bureau of Meteorology (BoM)/AusAid funded projects in Pacific Islands (Climate, Weather and Tsunami regional programmes) and one off commercial contracts. • Leveraging business innovations and employment opportunities from international development assistance cooperation ('win-win-win' value for money makeover to delivery of development

	<p>assistance to developing countries in the WMO Regional Association V (RA V) region in particular). expanding, maintaining, enhancing and sustaining international cooperation and business innovations and services (non-financial performance targets).</p>
Jan 2001 – Mar 2005	<p>Pacific Climate Analyst, National Institute of Water & Atmospheric Research (NIWA), Auckland, New Zealand</p> <ul style="list-style-type: none"> • Adaptation and Mitigation to climate variability and anthropogenic induced climate change: developing a tool (model) on adaptation and mitigation to climate change for Pacific Islands, with traditional indigenous and ecological knowledge (TEK) of weather and climate forecasting as the basis for formulating locally appropriate adaptation response policies and measures at all levels. • Seasonal to Interannual climate forecasts: improved understanding of seasonal-to-interannual climate forecasts. This research work compliments the traditional indigenous knowledge research work particularly in the verification and validation of local forecasts. • One of the team of climate scientists producing the NIWA Island Climate Update (ICU) (3-months climate outlooks for Pacific Islands). • Climate Policy: A Pilot Study on the Evolution of the United Nations Framework Convention on Climate Change (UNFCCC) and Kyoto protocol Greenhouse Gas Mitigation/adaptation Regime. This research brings in the political and human dimensions (TEK in particular) of climate change.
Nov 1996 – Dec 2000	<p>Climatology/Meteorology Officer, US DOE ARM in the Tropical Western Pacific (ARM TWP) Coordinator, SPREP, Apia, Samoa, Los Alamos, New Mexico, USA.</p> <p>Scientific and Technical Adviser to the Alliance of Small Island States (AOSIS) between 1996-1997 in the lead up and during the UNFCCC/Kyoto Protocol negotiations.</p> <p>Instrumental in formulating the Strategic Action Plan for the Development of Meteorology, including climatology, in the Pacific region (SDMP), 2000-2009. The SDMP has been the blueprint for development of meteorology, including climatology, in the Pacific Islands. The SDMP provides the framework for the 2012 Pacific Islands Meteorological Strategy, 2012 – 2015.</p>
Qualifications	<ul style="list-style-type: none"> • Ph.D. Candidate (part-time), UNIVERSITY OF WAIKATO, HAMILTON, NEW ZEALAND, 2006-current (on hold). Doctorate in Philosophy: Climate Change and Disaster Risk Management. <i>Thesis:</i> Managing extreme weather and climate events in Small Island Developing States of the Pacific; A vital first step towards building local adaptive capacity to anthropogenic climate change. • Masters/Postgraduate in Legal Studies for non-Lawyers (LLM equivalent) (2003), UNIVERSITY OF AUCKLAND, AUCKLAND, NEW ZEALAND • Bachelor of Science (BSc) in Physics and Mathematics (1987), UNIVERSITY OF THE SOUTH PACIFIC, SUVA, FIJI.
Other Major Achievements in Consulting, Research & related issues	<ul style="list-style-type: none"> • IPCC Nobel Peace Prize Contributor, 2007. • MetService (NZ) Chairman of the Board's award for contribution to the IPCC, 2007. • Served on two New Zealand Government Boards – The Pacific Development Conservation Trust (PDCT), Ministry of Internal

	<p>Affairs, and Wellington Region Conservation Board, Department of Conservation</p> <ul style="list-style-type: none"> • British Council of New Zealand (BCNZ), Royal Society of New Zealand (RSNZ), Fulbright and Montana Wines' Masters Scholarship Study tour of the United Kingdom, 2002. • New Zealand Ministry of Pacific Island Affairs (MPIA)' Louise Crawley Masters' postgraduate scholarship in public policy, 2002. • The United States Department of Commerce National Oceanic and Atmospheric Administration (NOAA) National Weather Service (US NOAA NWS) Special Award "In recognition and appreciation of significant services rendered for the National Weather Service", 2000. • The United States Department of Energy Atmospheric Radiation Measurement Programme (US DOE ARM) plaque for outstanding contributions to the ARM programme in the Tropical Western Pacific (TWP), jointly with SPREP, 1999.
<p>Publications (selection only)</p>	<ul style="list-style-type: none"> • Horton, J, P.F., Lefale, D. Keith (2020): <i>Parametric Insurance for Solar Geoengineering: Insights from the Pacific Catastrophe Risk Assessment and Financing Initiative</i>. Global Policy Journal, Durban University, First published: 10 October 2020, https://doi.org/10.1111/1758-5899.12864 • Lefale, P.F., (2020): <i>Geoengineering our climate: Should-Should-We do it? A compact Commentary</i>. In Petra Butler and Catherine Lorns (ED.), (2020). Environmental Law, Dispute Resolution and Small States, Institute of Small and Micro-States, United Kingdom (in press). • Tamasailau Suaali'i-Sauni and Penehuro Fatu Lefale (2020): <i>O le Ua e afua mai Manu'a: A Samoan Indigenous reading of the impacts of climate change</i>; In: Environment and Belief System – Key Concepts in Indigenous Studies, Routledge Taylor & Francis Group, India and UK (in press) • Lefale, Penehuro Fatu and Cheryl Lea Anderson., (2019): <i>Climate Engineering and Small Islands: Panacea or Catastrophe?</i> In: Geoengineering our Climate? Ethics, Politics, and Governance, Jason. J. Blackstock and Sea Low, Eds., Routledge, 2 Park Square, Milton Park, Oxon, OX14 4RN and Routledge, 711 Third Avenue, New York, NY 10017, 159-163. • Lefale, P.F., H. Diamond, and C. Anderson., (2018): <i>Effects of Climate Change on Extreme Events Relevant to the Pacific Islands</i>. Pacific Marine Climate Change Report Card, Science Review 2018: pp. 50-73. Pacific Island Commonwealth Member States, London, UK. • Lefale, P.F., P. Faiva and C. Anderson., (2017): <i>Living with Change (LivC): An Integrated National Strategy for Enhancing the Resilience of Tokelau to climate change and related Hazards, 2017-2030</i>. Wellington, New Zealand: Government of Tokelau and LeA International Consultants, Ltd. • Lefale, P.F., P. Faiva and C. Anderson., (2017): <i>Living with Change (LivC): An Integrated National Strategy for Enhancing the Resilience of Tokelau to climate change and related Hazards, 2017-2030 – IMPLEMENTATION PLAN, 2017-2022</i>. Wellington, New Zealand: Government of Tokelau and LeA International Consultants, Ltd. • Lefale, P.F., (2016): <i>AOSIS: Climate Clubs and the Alliance of Small Islands States (AOSIS)</i>. In: Climate Alliances après Paris, The Potential of Pioneer Climate Alliances to contribute to Stronger Mitigation and Transformation, Ott., H, S. Baurer, F. Mersmann, L. Weisher, S. Hug, N. Nadir, F. Rahmen, E. Rovere,

	<p>C. Cassen, J.C. Hourcade, E. Rennkamp, A. Marquard and R. Bakiika (confidential report).</p> <ul style="list-style-type: none"> • Swennenhuis, J, P. White, P.F. Lefale, O. Silverberg, J. Pelton., (2015): <i>Report of the Mid-Term Review Finnish Pacific Project (FINPAC) Reduced Vulnerability of the Pacific Island Country villagers' Livelihoods to the effects of climate change</i>, August 2015, FCG International Ltd, 41 pages + annexes (Confidential Report to the Finland Ministry for Foreign Affairs (MFA)). • Pelton, J and P. Lefale., 2012: Finnish-Pacific Project to Reduce Vulnerability of the Pacific Island Countries' Livelihoods to the effects of climate change (FINPAC) & Improved Capacity of the Pacific Island Countries National Meteorological Services to deliver weather and climate services (FINPAC-FMI), Project Appraisal Final Report, Presented to the Ministry of Foreign Affairs, Finland, Finnish Consulting Group Ltd (FCG), Helsinki, Finland, 51 pp. (confidential report). • Lefale, P.F., D. King, A. Ngari, 2012: Managing climate risks using Polynesian knowledge, State of the Climate report 2011, US NOAA and WMO publication, NOAA, http://www1.ncdc.noaa.gov/pub/data/cmb/bams-sotc/climate-assessment-2011-lo-rez.pdf • Lefale, P.F., 2009: <i>Ua 'afa le Aso. Stormy Weather today: traditional ecological knowledge of weather and climate; The Samoa Experience</i>. Climatic Change, Vol. 100, Number 2, 317-335, DOI:10.1007/s10584-009.9722-z http://www.springerlink.com/content/w4170n44610n2431/ • Mimura, N., L. Nurse, R.F. Mc Lean, J. Agard, L. Briguglio, P. Lefale, R. Payet and G. Sem, 2007: <i>Small Islands, Climate Change 2007: Impacts, Adaptation and Vulnerability</i>. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M. L. Parry, O.F. Canziani, J.P., Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 687-716. http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter16.pdf. • Nyenzi, B., and P.F. Lefale., 2005: <i>El Niño Southern Oscillation and Global Warming</i>. In: <i>Advances in Geosciences</i>, 6, 1-7, SRef-ID: 1680-7359/adge/2005-6-1, European Geosciences, Germany. http://www.adv-geosci.net/6/95/2006/adgeo-6-95-2006.html
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